

Written evidence submitted by the Tidal Range Alliance (REW0018)

The Tidal Range Alliance (TRA) is a formal Working Group within the British Hydropower Association, bringing together developers, companies, supply chain businesses and individuals involved in or with an interest in promoting and pursuing tidal range energy projects in the UK and overseas.

The TRA promotes the multi-disciplinary features and benefits of tidal range projects to stakeholders across Governments, industry, and the media.

Membership of the TRA is open to any individual or business with an involvement or interest in the development of a tidal range industry in the UK.

The TRA objectives are -

- Help to instigate development of the UK's tidal range industry
- Raise awareness of the range and scale of tidal range projects across the UK
- Communicate the key features and benefits of tidal range projects
- Create and respond to media opportunities for tidal range projects
- Grow and sustain interest in tidal range
- Support tidal range developers and suppliers

1. How can the UK Government best support the deployment of renewable generators in Wales?

The critical input required from UK Government is the essential policy support for tidal range energy as an integral part of the UK's future energy mix.

Despite the positive and independent assessments of the features and benefits of tidal range, including flexibility, operating life and co-benefits and predictability, the Government appears to continue to ignore its potential contribution to the UK's energy security and stability.

This is most notable in the government's recent 'The ten-point plan' for a green industrial revolution where tidal energy was conspicuous by its absence and therefore there must be an urgent reset in Government thinking on tidal range energy.

This requires funding to gather the necessary, independent, and credible evidence to provide the basis of discussions on future Policy, pricing, and any subsidy.

The Tidal Range Alliance has already requested from Government a £20M fund to be made available for this very purpose, the Tidal Range Baseload Assessment Fund.

It is important to note that nearly every submission to the recent Environmental Audit Committee Call for Evidence on tidal power – including from RSPB, NRW, EA, BEIS and individual developers - called for more and better financial, system and environmental data, more modelling and truer and fair whole-life, and whole-system cost-benefit analysis.

It is fair to say that there is considerable and common interest across key stakeholders in evaluating the credentials of tidal range under a rational basis.

The TRA's proposed "Tidal Range Baseload Assessment Fund" would investigate, among other subjects:

- Baseload generation potential – single and multi-lagoon – value to the National Grid
- Environmental baseline research – fish, birds, invertebrates
- Construction techniques, costs, and timeframes
- Co-benefit valuation (e.g., coastal protection)
- Financial and operational modelling of large and small tidal range projects to evaluate cost-effectiveness and value for money
- Cost-benefit analysis of ultra-long life (120 + year) operating assets such as tidal lagoons and barrages
- Turbine development (performance, efficiency, fish friendly)
- Front End Engineering Development (FEED) for selected projects

The data obtained would then enable an accurate and fair whole-life and whole-system cost benefit analysis to be undertaken and allow Government and investors to understand the strategic benefits to the UK economy and to assist in formulating the most appropriate long-term funding and investment requirements (modified CFD or RAB or other).

2. How should the UK and Welsh Governments work together to support the development of renewable energy projects in Wales?

Wales has a unique coastline and marine resource with a significant opportunity to take a global leadership role in the world tidal range energy market. Several projects have been reviewed such as the Severn Barrage, Swansea and Cardiff Lagoons as well as the North Wales Lagoon. The former was proven from an engineering standpoint as being feasible. The Swansea project failed on the level of subsidies required through the CfD. These projects have left a wealth of knowledge and much improved understanding about the ability of Wales to produce commercial level tidal energy.

UK and Welsh Government should collaborate closely to establish common aims, objectives, and policy to support the growth of a new and vital industry. Given the history of past developments referenced in the paragraph above, it is evident that Wales has the ideal coastline to support multiple projects.

Smaller tidal lagoons (<350MW installed capacity) can be developed and approved within Wales' devolved powers, though the UK government currently still controls subsidy levels via mechanisms such as Contracts for Difference (CFD).

Large tidal range projects are defined as a Nationally Important Infrastructure Project (NSIP) and remain completely at the bequest of Westminster.

Scale and technical complexity drive early-stage economics as has been demonstrated through government sponsored development of other renewables pathways, which in turn forms the basis of national subsidies.

It is the benefit of scale and reduced technical complexity that tidal range offers.

For example, the installed capacity cost of Swansea Bay lagoon was >£4,000/kW, for the proposed North Wales Tidal Lagoon, for example it is 60% of this.

The TRA's "Tidal Range Baseload Assessment Fund" outlined in Q1 will provide both Governments with the data and modelling to allow open discussion and verification of the value of tidal range to regional and national economies in the pursuit to Net Zero targets.

We therefore suggest that UK and Welsh Governments should work together to agree a framework and funding for the "Tidal Range Baseload Assessment Fund".

Welsh Government can lead the way in developing the necessary framework to demonstrate the value of tidal range to the UK. Rather than concentrating on simple cost of energy models, there needs to be broad recognition of tidal range's unique multi-generational operating life, extensive co-benefits and contribution to Wales and the UK's energy security, stability and Net Zero targets.

3. What mechanisms can ensure that subsidies for renewable generators are good value for money?

Currently there are no mechanisms in place for tidal range projects anywhere in the UK.

The existing CFD mechanism does not recognise any of the unique features and benefits of an energy generator, such as tidal range, that has an ultra-long life (over 120 years), that provides significant additional benefits to its operational geography (coastal protection, transport, tourism, etc).

This means existing simplistic comparisons, such as Levelised Cost of Energy (LCOE) and cost per MWh, are wholly inadequate as they do not reflect whole-life and whole-system cost and value for money.

Because comparisons do not properly capture the full benefit value, nor recognise the highly strategic and security value in securing a new renewable scale energy source in the future UK energy mix with low end life legacy issues.

Therefore, we suggest UK and Welsh Governments work together to develop a subsidy regime which recognises these factors. The Regulated Asset Base (RAB) has been suggested, however there may be other mechanisms whereby value for money is ensured. These will need further investigation.

4. What opportunities are there for renewable generators in Wales of greater interconnection with other electricity markets?

The UK and Ireland electricity markets are already connected by the East-West Interconnector and represent a clear opportunity for inter-grid trade that renewables assets located in Wales could support with reduced transmission losses.

However, while not requested, it should also be considered what value renewables assets in Wales can offer other energy markets. Specifically, this could include the use of curtailed renewables power to generate hydrogen for energy storage and distribution to transport and other hydrogen grid systems.

North Wales is in a unique position to collaborate with programmes such as HyNet; the Liverpool-Manchester hydrogen cluster whose mission is to be the first net-zero carbon industrial cluster by 2040.

5. How can the UK Government facilitate Welsh contributions to COP26?

It is critically important that Wales' leading role in the development of tidal energy be highlighted at COP26.

The North Wales Tidal Lagoon project is an example of the potential for tidal range projects to have a transformational impact on the region, economy, and communities:

- Significant contribution to CO₂ emissions reduction
- Industrial to national scale sustainable energy generation
- Grid security and stability over long-term [120 years]
- Critical support for other intermittent renewable energy sources
- Coastal protection for infrastructure including mainline rail and road links to Ireland
- Multi-generational planning to benefit future generations.

6. What implications is COP26 expected to have for Wales?

Through COP26, significant commitment and action is required from both UK and Welsh Government to lower carbon emissions and transform our energy systems through, for example, policy support for tidal range energy.

What will make a difference with COP26 is the specific actions that emerge that can have a positive impact on renewable energy in Wales. Specifically:

- Hosting COP26 in the wake of COVID19 and the global green rhetoric of the past 12 months, represents both a significant and unique opportunity for the UK to take a position as a leader in the global climate change emergency response.
- Which if approached correctly could culminate in Memorandum of Understandings between specific nations to develop, deploy and disseminate low carbon technologies. The world cannot wait for competitive markets to create investment opportunities to deliver 2050 targets.
- Related to tidal range and marine energy in general, initiatives related to the exploration and validation of the tidal range opportunities can enable Wales to be a world-leading centre of excellence for the development of infrastructure and project know-how for tidal range energy.
- In the wake of renewed awareness of the reality and impact of global threats, it is vital that countries can acknowledge beyond words, the incontrovertible danger presented by climate change; and that the response is collaborative. Low carbon solutions can be accelerated significantly through the application of shared political agendas and state sponsored technology development and collaboration.

The world cannot wait for competitive markets to create investment opportunities to deliver 2050 targets.

- These opportunities must be driven, and it is conceivable that COP26 could yield such cross-border technology collaborations, including one covering tidal range.

7. Has the COP26 Year of Climate Action had any significant implications for Wales?

Coronavirus continues to have a significant impact on COP26. Many announcements have been hampered and progress on delivery has slowed. However, a renewed focus on a green recovery and increased awareness of climate change issues should hopefully accelerate the need to deliver and provide sustainable economic opportunities post-Covid.

COP26 represents an opportunity for Wales to highlight its green credentials, both existing related to recycling and potential related to tidal range.

8. What opportunities are there for renewable energy to aid Wales post-COVID-19 economic recovery?

There are nearly 1700 miles of Welsh coastline with significant opportunities to harness tidal range energy in a variety of ways.

Developing tidal range energy offers Wales a real way forward to deliver a Low Carbon Economy and reduce carbon emissions in response to the Climate Emergency declared by Welsh Government in 2019. However, the benefits for Wales go beyond clean energy. By supporting local supply chains and proving other societal benefits value from the sector can be kept locally in Wales which could offer a positive opportunity for the future development of a resilient Welsh economy because of the Covid-19 pandemic.

The proposed North Wales Tidal Lagoon is an example of such opportunity.

It is supported by Conwy and Denbighshire Councils as well as the North Wales Economic Ambition Board: *"The Board recognises the benefits tidal lagoons can deliver including coastal protection, predictable renewable energy and socio-economic benefits."*

Independent Economic Impact Assessment of the North Wales Tidal Lagoon by Glyndwr University shows that its development, construction, and operation will generate more than 22,000 jobs.

Initiation of the required environmental, habitation and engineering work needed to obtain the full range of consents and licenses to build, will provide high GVA employment in the Region and it will also inject a much-needed boost of confidence for the future of North Wales' economy.

The supply chain for this project will call on local, regional, and national academic, commercial, and industrial resources and could be transformational, not just for North Wales, but wider within the UK.

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